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Capabilities of amperometric monoamine oxidase biosensors based on screen-printed graphite electrodes modified with multiwall carbon nanotubes in the determination of some antidepressants

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Abstract

© 2015, Pleiades Publishing, Ltd. Amperometric biosensors based on planar screen-printed graphite electrodes modified with multiwall carbon nanotubes (MWCNTs) and immobilized monoamine oxidase enzyme (MAO) have been proposed for the determination of antidepressants (imipramine, afobazole, and phenazepam). The operation of the proposed biosensors is based on the inhibiting ability of antidepressants. The analytical capabilities of the proposed devices have been compared to those of biosensors based on the electrodes unmodified with MWCNTs. The proposed biosensors can be used for the control of both residual amounts of drug substances in biological fluids (urine) and the active ingredient in dosage forms.

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Keywords

antidepressants, biosensor, carbon nanotubes, monoamine oxidase